What is claimed is:

1. A radar device for a vehicle, said radar device comprising:

an image taking means for obtaining an image including a road surface in front of or behind said vehicle;

a sensor having a center axis for obtaining at least positional information on an object of detection in front of or behind said vehicle; and

a control means for correcting the direction of said center axis of said sensor based on said image obtained by said image taking means, said control means including:

a line segment detecting means for detecting on said image a line segment along a lane in which said vehicle is traveling;

a vector detecting means for detecting a vector indicative of the direction on a road-fixed coordinate system of said line segment obtained by said line segment detecting means; and

a correcting means for controlling correction of horizontal and vertical directions of said center axis so as to coincide with the direction of said vector detected by said vector detecting means.

2. The radar device of claim 1 wherein said line segment detecting means serves to detect at least a pair of line segments on both sides of a lane on which said vehicle is traveling and said vector detecting means detects said vector by determining a vanishing point on said image as intersection of extensions of said pair of line segments and detecting said vector from said vanishing point.

3. The radar device of claim 2 further comprising a partitioning means for partitioning said image obtained by said image taking means into a plurality of zones, wherein said line segment detecting means serves to detect pairs of line segments by detecting one of said pairs of line segments in each of said zones, and wherein said vector detecting means detects said vector by determining a plurality of vanishing points from said pairs of line segments, detecting triangular areas each having a top corner at corresponding one of said vanishing points and bottom corners at points on the most

closely positioned one of said pairs of line segments, calculating shared areas between said triangular areas and the area of said lane on said image, selecting one of said triangular areas having the largest of said shared areas, and detecting said vector from the vanishing point corresponding to said selected one of the triangular areas.

4. The radar device of claim 2 wherein said line segment detecting means serves to detect a bottom pair of line segments in a lowest of horizontally elongated zones along bottom edge of said image and wherein said vector detecting means detects said vector by determining said vanishing point from said bottom pair of line segments, selecting a plurality of points scattered horizontally and vertically on said image within a specified area centered around said determined vanishing point, detecting triangular areas each having a top corner at corresponding one of said selected points and bottom corners at points, calculating shared areas between said triangular areas and the area of said lane on said image, selecting one of said triangular areas having the largest of said shared areas, and detecting said vector from the selected point corresponding to said selected one of said triangular areas.

5. The radar device of claim 3 wherein said vector detecting means serves to determine excludable ones of said zones where a target object of detection overlaps or is considered likely to overlap either of the line segments on said image on the basis of position data on said target object of detection obtained from said sensor and to exclude said excludable zones thus determined when determining said vanishing points.

6. The radar device of claim 1 wherein said control means stats to correct the direction of said center axis of said sensor when at least one of conditions are satisfied, said conditions including:

condition that said object of detection is detected to have changed horizontal position on said image;

condition that said vehicle is detected to have changed speed;

condition that said vehicle is detected to have tilted with respect to the horizontal plane; and condition that said vehicle is detected to have changed lanes.

7. The radar device of claim 2 wherein said control means stats to correct the direction of said center axis of said sensor when at least one of conditions are satisfied, said conditions including:

condition that said object of detection is detected to have changed horizontal position on said image;

condition that said vehicle is detected to have changed speed;

condition that said vehicle is detected to have tilted with respect to the horizontal plane; and

condition that said vehicle is detected to have changed lanes.

8. The radar device of claim 3 wherein said control means stats to correct the direction of said center axis of said sensor when at least one of conditions are satisfied, said conditions including:

condition that said object of detection is detected to have changed horizontal position on said image;

condition that said vehicle is detected to have changed speed;

condition that said vehicle is detected to have tilted with respect to the horizontal plane; and

condition that said vehicle is detected to have changed lanes.

9. The radar device of claim 4 wherein said control means stats to correct the direction of said center axis of said sensor when at least one of conditions are satisfied, said conditions including:

condition that said object of detection is detected to have changed horizontal position on said image;

condition that said vehicle is detected to have changed speed;

condition that said vehicle is detected to have tilted with respect to the horizontal plane; and condition that said vehicle is detected to have changed lanes.

10. The radar device of claim 5 wherein said control means stats to correct the direction of said center axis of said sensor when at least one of conditions are satisfied, said conditions including:

condition that said object of detection is detected to have changed horizontal position on said image;

condition that said vehicle is detected to have changed speed;

condition that said vehicle is detected to have tilted with respect to the horizontal plane; and

condition that said vehicle is detected to have changed lanes.